Pearson BTEC Level 3 Nationals Certificate, Extended Certificate, Foundation Diploma, Diploma, Extended Diploma

Time 3 hours

| Paper reference | **31761H** |

Information Technology
UNIT 2: Creating Systems to Manage Information

Part A

You must have:
activity2.rtf, activity3.rtf, activity4.rtf

Instructions

- **Part A** and **Part B** contain the material for the completion of the assessment under supervised conditions.
- There are 40 marks for **Part A** and 26 marks for **Part B**, giving a total mark for the assessment of 66.
- **Part A** and **Part B** are specific to each series and this material must be issued only to learners who have been entered to take the assessment in the specified series.
- Learners **must only** have access to **Part A** during this examination session.
- This booklet should be kept securely until the start of the 3-hour supervised assessment period.
- **Part B** materials must not be accessed during the completion of **Part A**.
- **Part A** and **Part B** should be submitted together for each learner.
- This booklet should not be returned to Pearson.
- Answer **all** activities.

Information

- The total mark for this paper is 40.

Turn over ▶

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Instructions to Invigilators

This paper must be read in conjunction with the unit information in the specification and the *BTEC Nationals Instructions for Conducting External Assessments (ICEA)* document. See the Pearson website for details.

Refer carefully to the instructions in this task booklet and the *BTEC Nationals Instructions for Conducting External Assessments (ICEA)* document to ensure that the assessment is supervised correctly.

The 3-hour **Part A** activities must be carried out under examination conditions.

Electronic templates for Activities 2, 3 and 4 are available on the website for centres to download for candidate use.

Learners must complete **Part A** on a computer using the templates provided and appropriate software. All work must be saved as PDF documents for submission.

Invigilators may clarify the wording that appears in **Part A** but cannot provide any guidance in completion of the activities.

Invigilators should note that they are responsible for maintaining security and for reporting issues to Pearson.

Maintaining Security

- Learners must not bring anything into the examination environment or take anything out.
- Centres are responsible for putting in place appropriate checks to ensure that only permitted material is introduced into the examination environment.
- Internet access is **not** permitted.
- Learners' work must be regularly backed up. Learners should save their work to their folder using the naming instructions indicated in each activity.
- During any permitted break, and at the end of the examination, materials must be kept securely, and no items removed from the supervised environment.
- Learners can only access their work under supervision.
- User areas must only be accessible during the examination session and only by the individual learners.
- Any materials being used by learners must be collected in at the end of the examination.
- Following completion of **Part A**, all materials must be retained securely for submission to Pearson.
- **Part B** materials must not be accessed during the completion of **Part A**.

Outcomes for Submission

Each learner must create a folder to submit their work.

The folder should be named according to this naming convention:

[Centre #]_[Registration number #]_[surname]_[first letter of first name]_PartA

Example: Joshua Smith with registration number F180542 at centre 12345 would have a folder titled

12345_F180542_Smith_J_PartA

Each learner will need to submit 6 PDF documents **and** their final database within their folder.

The 6 PDF documents should use these file names:

Activity 1:   activity1_[Registration number #]_[surname]_[first letter of first name]
Activity 2:   activity2_[Registration number #]_[surname]_[first letter of first name]
Activity 3:   activity3_[Registration number #]_[surname]_[first letter of first name]
Activity 3d: activity3d_[Registration number #]_[surname]_[first letter of first name]
Activity 4:   activity4_[Registration number #]_[surname]_[first letter of first name]
Activity 5:   activity5_[Registration number #]_[surname]_[first letter of first name]

Instructions for Learners

Read the scenario, brief and activities information carefully.

Plan your time carefully to allow for the preparation and completion of all the activities.

Internet access is **not** allowed.

You will complete the activities under supervision and your work will be kept securely at all times.

You must work independently throughout the examination and must not share your work with other learners.

Your invigilator may clarify the wording that appears in **Part A** but cannot provide any guidance in completion of the activities.

Part B materials **must not** be accessed during the completion of **Part A**.

Outcomes for Submission

You must create a folder to submit your work.

The folder should be named according to this naming convention:

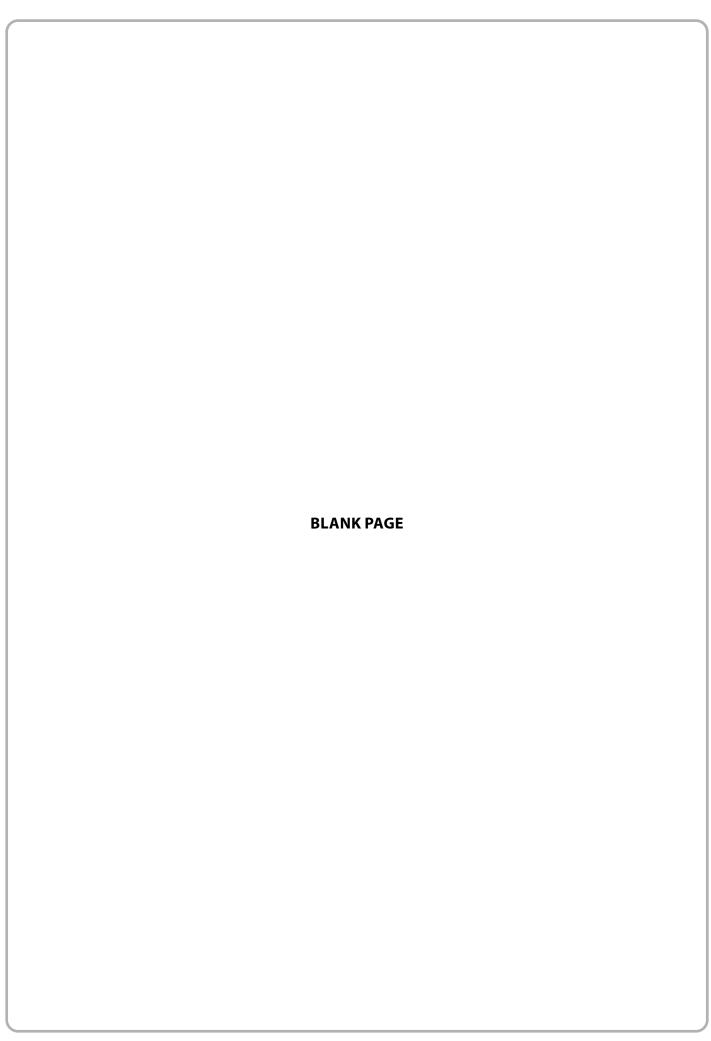**[Centre #]_[Registration number #]_[surname]_[first letter of first name]_PartA**

Example: Joshua Smith with registration number F180542 at centre 12345 would have a folder titled

12345_F180542_Smith_J_PartA

You will need to submit 6 PDF documents **and** your final database within this folder.

The 6 PDF documents should use these file names:

Activity 1:   activity1_[Registration number #]_[surname]_[first letter of first name]
Activity 2:   activity2_[Registration number #]_[surname]_[first letter of first name]
Activity 3:   activity3_[Registration number #]_[surname]_[first letter of first name]
Activity 3d: activity3d_[Registration number #]_[surname]_[first letter of first name]
Activity 4:   activity4_[Registration number #]_[surname]_[first letter of first name]
Activity 5:   activity5_[Registration number #]_[surname]_[first letter of first name]

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Part A Brief

You are advised to spend 10 minutes reading the Scenario and the activities you are to complete.

You may make notes and/or highlight information to use in the completion of the documents you need to produce for your activities.

Scenario

You have been asked to create a database for Martlepool College Ladies Football Club.

The database will record information about:

• the players
• their mentors
• player statistics.

Players are assigned a position, for example, Centre Forward.

Players may be assigned more than one position during their time at the club.

Players are assigned a mentor. They stay under the care of that mentor for their entire time at the club.

Statistics are recorded about the player for each position they play in. For example, they are given a player rating. This rating must be at least one and no higher than five. One is the highest rating a player can achieve.

Data kept about the player includes their surname and the initial of their first name. The initial must be uppercase.

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An extract of the data the organisation would like to record is shown in **Figure 1.**

Player ID	Player Surname	Player Initial	Position ID	Player Position Yellow Cards	Position Name	Player DOB	Player Position Goals	Player Position Substitutions	Mentor Surname	Player Position Rating	Mentor ID
1	Hernandez	G	1	0	Goalkeeper	05/04/2006	0	0	Ahlam	1	2
2	Islam	R	2	10	Left Back	18/01/2005	1	3	Ahlam	5	2
3	Garcia	S	8	0	Centre Forward	14/02/2005	6	2	Berger	1	1
4	Johnson	B	8	4	Centre Forward	12/12/2007	8	0	Berger	3	1
5	Morris	K	8	2	Centre Forward	26/09/2006	5	3	Berger	2	1
3	Garcia	S	3	0	Centre Back	14/02/2005	0	1	Berger	1	1
2	Islam	R	4	7	Right Back	18/01/2005	0	0	Ahlam	4	2
3	Garcia	S	5	8	Left Midfield	14/02/2005	2	1	Berger	4	1
6	Meek	G	6	3	Centre Midfield	10/07/2007	1	2	Berger	2	1
7	Zhang	C	4	9	Right Back	14/08/2007	0	0	Ahlam	3	2
8	Taylor	A	7	2	Right Midfield	04/05/2005	1	0	Berger	2	1

Figure 1

Part A Set Task

You must complete ALL activities within Part A.

Produce your documents using a computer.

Save your documents in your folder ready for submission using the formats and naming conventions indicated.

Activity 1: Database relationships screenprint (45 minutes)

Study the data extract provided in **Figure 1**.

Create an efficient database structure that:

• minimises data duplication
• accepts the data provided
• uses recognised naming conventions
• ensures data integrity.

Ensure you use **all** and **only** the fields shown in **Figure 1**.

Screen print your database relationships.

Save your database relationships screenprint as a PDF in your folder for submission as
activity1_[Registration number #]_[surname]_[first letter of first name]

You are advised to spend 45 minutes on this activity.

(Total for Activity 1 = 8 marks)

Activity 2: Table structures and validation (45 minutes)

Create efficient table structures based on Activity 1 and the data shown in **Figure 1**.

The table structures must use suitable validation to meet these requirements:

- a record for a player will not save without the player's date of birth being present
- a record for a player will not save without the player's initial in the correct format
- a record for a player will not save if the player is assigned an invalid mentor
- a record for player statistics will not save if the player rating is below the accepted range
- a record for player statistics will not save if the player rating is above the accepted range
- a record for player statistics will not save without a valid position.

Input the data given in **Figure 1** into your relational database.

Evidence your table structures and validation as screenprints using the given **activity2.rtf** template.

Display your screenprints to show:

- the design view of each table showing the structure, including the fields and data types
- validation including one suitable example for each of these:
    - presence check
    - length check
    - value lookup **or** range check
    - table lookup
    - format check.

Save your evidence of the table structures as a PDF in your folder for submission as **activity2_[Registration number #]_[surname]_[first letter of first name]**

You are advised to spend 45 minutes on this activity.

(Total for Activity 2 = 8 marks)

Activity 3: Queries and Report (40 minutes)

Queries

(a) Create a query to display a list of players who have a rating of at least one and no more than three. It must show the player surname, date of birth, position and rating. It must be sorted from youngest to oldest player.

(b) Create a query that will calculate and display the:

- age of the players, for example 16
- number of players for each age
- number of yellow cards for each age
- highest number of goals for each age.

Evidence your queries as screenprints using the given **activity3.rtf** template.

Your screenprints must show:

- the **DESIGN** view of the queries specified that you have created, including fields and criteria
- the **DATASHEET** view of the queries specified that you have created.

Report

(c) Create a report that shows the statistics for each player who has played in more than one position.

Display a suitable report title.

For each player display:
• the surname
• the initial
• the date of birth.

Calculate and display:
• the number of positions they have played in
• the best rating they have achieved
• the total number of yellow cards they have received.

The report must fit on one page.

Evidence your report as screenprints using the given **activity3.rtf** template.

Your screenprints must show:

• the **DESIGN** view of the report you have created, including grouping and calculations
• the **DESIGN** view of any queries you have created and used with the report, including fields and criteria
• the **DATASHEET** view of any queries you have created and used with the report.

Save your query and report evidence as a PDF in your folder for submission as **activity3_[Registration number #]_[surname]_[first letter of first name]**

(d) Save your database report (not a screenprint) as a PDF in your folder for submission as **activity3d_[Registration number #]_[surname]_[first letter of first name]**

You are advised to spend 40 minutes on this activity.

(Total for Activity 3 = 12 marks)

Activity 4: Structure Testing (20 minutes)

Test the structure and the validation of your relational database using suitable test data (normal, erroneous and extreme as appropriate).

You must provide evidence of table level testing that proves:

1. a record for a player will not save without the player's date of birth being present
2. a record for a player will not save without the player's initial in the correct format
3. a record for a player will not save if the player is assigned an invalid mentor
4. a record for player statistics will not save if the player rating is below the accepted range
5. a record for player statistics will not save if the player rating is above the accepted range
6. a record for player statistics will not save without a valid position.

Complete the test log to show how you have tested the structure and validation of your database using the given **activity4.rtf** template.

Save your test log as a PDF in your folder for submission as
activity4_[Registration number #]_[surname]_[first letter of first name]

You are advised to spend 20 minutes on this activity.

(Total for Activity 4 = 6 marks)

Activity 5: Structure Evaluation (20 minutes)

Evaluate your database structure and validation.

You should consider:

• how well your database structure has minimised data duplication
• how well your database structure meets these requirements:
  • players are assigned a position, for example, Centre Forward
  • players may be assigned more than one position during their time at the club
  • players are assigned a mentor. They stay under the care of that mentor for their entire time at the club
  • statistics are recorded about the player for each position they play in. For example, they are given a player rating. This rating must be at least one and no higher than five. One is the highest rating a player can achieve.

Save your evaluation as a PDF in your folder for submission as
activity5_[Registration number #]_[surname]_[first letter of first name]

You are advised to spend 20 minutes on this activity.

(Total for Activity 5 = 6 marks)

TOTAL FOR PART A = 40 MARKS